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ABSTRACT

A multifactor instrument, the Bentler Interview Developmental Scale (BIDS), was used to measure developmental changes in children from birth to age 7. The device consisted of 115 age related items to which the mother responded. Data was gathered through interviews of the mothers of sample children throughout the United States. Reliability of the instrument was .83 for girls and .81 for boys. The internal consistency coefficient, based upon 4754 interviews of girls and boys, was found to be .90 and .89 respectively. The BIDS instruction booklet, both girls' and boys' versions of the instrument, reliability tables, growth data, preliminary norms, and summaries of 12 validity studies are included in appended tables. (CK)

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Final Report

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Multifactor Instrument for Developmental Changes in Children

Peter M. Bentler, Ph.D., Principal Investigator

December 1, 1970 Office of Economic Opportunity

TM 000 625

Interviewers were recruited through psychologists and friends throughout the United States. Each interviewer was asked to obtain 50-75 interviews with mothers of children in the age range 0-7, divided to approximate the sex, race and socio-economic cross section of the area. The interviewer located mothers to interview, introduced himself, presented a business card, and briefly explained the survey nature of the Bentler Interview Developmental Scale (BIDS) in nontechnical terms. The interviewer obtained the names and ages of all children in the family if the mother agreed to cooperate, decided on the child to study, asked the BIDS questions, obtained statistical data regarding marital status, religious preference, income, occupation, and education of breadwinner. Race and U.S. location was obvious.

The instructions for the final version of the BIDS are presented in Table 1. The girls' version of the BIDS is presented in Table 2; the boys' version is in Table 3.

To obtain information regarding the reliability of the BIDS, a certain number of mothers of children of a given age and sex were contacted and reinterviewed an average of 6 weeks (range 4-8 weeks) after initial interview. In 90% of the cases the reinterview was conducted by telephone. Reliability data for the girls is presented in Table 4. The ID code contains 3 numerals; the first two represent the child's age in 3-month intervals, the third represents female sex. Thus ID code 021 represents girls aged 4, 5, or 6 months. It can be seen a total of 879 mothers of girls were reinterviewed, and an average test-retest correlation of .83 was obtained. Similar data are presented for the boys in Table 5. 946 mothers of boys were reinterviewed. A test-retest correlation of .81 was obtained on the average. Tables 4 and 5 also demonstrate the quite regular increase in mean scores with increasing age. It can be seen that there is a ceiling effect past the age of six years, and that discrimination is best in the earlier years.

Internal consistency coefficients based upon 4754 interviewees are presented in Table 6. The average stepped-up odd even correlation is .90 for girls; the equivalent coefficient is .89 for boys.

In order to obtain some information regarding the stability of BIDS scores across a reasonably lengthy stretch of time, the following study was conducted; it was not planned in the initial proposal. Judicious use of local work-study students as research assistants freed sufficient funds for this purpose. A set of items parallel to the BIDS items was retained and placed into a questionnaire version of BIDS. These items had been rejected from BIDS as not meeting psychometric criteria, but they were not particularly "bad" items either. A network of acquaintances, as well as some interviewers, contacted pediatricians across the country. Many pediatricians were contacted by letter.

Questionnaires were placed in cooperating pediatricians' offices, and mothers were asked to fill out the questionnaire and to return it by mail to UCLA. There was no attempt to obtain a random cross-section of the population. Mothers who indicated a willingness to fill out a second questionnaire were sent a written version of the BIDS some 2-12 months after initially participating. They were sent a feedback letter; this letter stated that their child was far above average, above average, average, below average, or far below average according to how the child performed in relation to norms (top 5%, next 25%, next 40%, next 28%, bottom 2%). Great care was taken to caution mothers from overinterpreting, since predictions to later I.Q. were stated as being impossible to make. Bottom 2% mothers were referred to their pediatricians. All mothers were queried about subscribing to a child development informational newsletter; however, interest level was too low and the project was dropped.

Table 7 presents the growth data. In this table only the age codes refer to age in months, and sex. The average time lapse to re-test was slightly over 8 months, with a standard deviation of 2+ months. 6441 mothers participated in this study, an average of 101 per age code. Those mothers did not participate in the interview study. The correlation between scores on initial testing and scores on final testing averages .63, while the correlation between gain in age across the time interval and the gain in score averages .37. It can be seen that initial-final correlations are quite low during the first year, but rise thereafter. It should be pointed out that these data need additional analysis, since the correlations are affected by variance in final age (in the usual study final age would be equivalent for all subjects). Scores need to be referred to norms for any given final age, and deviation scores need be correlated with initial scores.

The preliminary norms for the BIDS are presented in Table 8. Part I of Table 8 presents the data for children up to 15 months in age. Since the sample was sufficiently large, it proved possible to divide these 3-month periods into two parts. A sex difference in performance appeared only in ages 16 to 36 months; these norms are presented in Part II of Table 8. The data for older children is in Part III. It can be seen that 4883 mothers participated in the study, twice the number contracted for. When it became apparent that 1970 Census data would show a radically different makeup of the country from that of the previous Census, it was decided to wait with final norming until the 1970 data were available. They are as yet not available; hence, final norms are not computed. However, it was deemed prudent to increase the number of participants radically so as to be able to sample from the total group of mothers to obtain an adequately representative sample when the Census data do become available. Consequently the data of Table 8 make it possible to use the BIDS in practical situations, but it should be recognized that more accurate and detailed data await the Census results.

Twelve validity studies are summarized in Table 9. Studies 1, 2, and 7 demonstrate either no relation or only marginal relationships between the Bayley Scales of Infant Development and the BIDS. Studies 5 and 6 show that the BIDS does not measure verbal intelligence, nor does it relate to a teacher rating measure of intelligence. However, study 6 shows BIDS scores significantly reflect behaviors that the child can perform. Studies 3 and 4 demonstrate a significant correlation between mental age calculated from the Binet and BIDS. Studies 8-12 demonstrate that atypical children who have been independently defined as deviant in mental development score far below norms, as expected.

Table 1
BIDS Instruction Booklet

Select the appropriate interview form (girl or boy form). The only difference between them is in the pronouns used. You will note the forms are age graded with the simplest abilities at the beginning of the list of questions, and the most difficult tasks at the end. Please read the questions directly off the form rather than asking from memory. After some of the questions there are "Notes" for the interviewer's information and you should not read these Notes to the mother.

Explain to the mother about the questions as follows:
"The questions I will be asking you from this form cover the behavior of children who are younger than (first name) as well as the activities of children who are older. So it will be unlikely that (first name) does all of the things I will mention. You should just tell me whether or not (first name) can do the things I describe."

Since some of the questions are about activities that the child will very likely be able to do, and others will be completely beyond his capabilities, there is a system (explained later in this section) intended to limit questions to those appropriate to the child and his age group. When the interview is finished you should have approximately 25 to 50 answers, 10 "yes" answers in a row at the beginning of the list of answers; 10 "no" answers in a row at the end of the list of answers; and several answers with either "yes" or "no" in between. The score is the total number of yeses, including those you assume to be "yes" prior to your 10 yeses.

To find a beginning question use the following schedule, which shows the question level an "average" child of that age can be expected to do:

Age	Start at Question	Age	Start at Question	Age	Start at Question
1/4	5	2-1/4	50	4-1/4	85
1/2	10	2-1/2	55	4-1/2	90
3/4	15	2-3/4	60	4-3/4	90
1	20	3	65	5	95
1-1/4	25	3-1/4	70	5-1/4	95
1-1/2	30	3-1/2	75	5-1/2	95
1-3/4	35	3-3/4	80	5-3/4	100
2	45	4	80	6	100
				6+	105

For example, if the child is 2 years old, start with question 45.

Table 1
BIDS Instruction Booklet
(continued)

For your second question ask one about 25 or 30 points higher than the first question (for example, if you start on question 45, skip up to question 70). The child will probably be unable to do this. The reason for skipping up so far is to convince the mother that you really will be asking about things her child will not be able to do, since mothers very much like to answer "yes".

For the third question ask one about 10 or 15 points below the first question (for example, if you start on question 45, go down to question 30), so the mother will see there will also be some very easy questions.

After these first 3 questions skip back and forth above and below the first question until you get 10 "yes" answers in a row at the beginning and 10 "no" answers in a row at the end, being sure to ask all questions between the 10 "yes" and 10 "no" answers. The reason for skipping back and forth is to avoid an answering "set" by the mother of all "yes" or all "no" answers.

Exactly how you skip around will depend on how the mother is reacting. If she seems to be saying "yes" to everything, try a few hard questions. If she's saying "no" to everything, try a few easy questions. What we want to avoid is having a mother just say "yes" or "no" without thinking because she's been saying "yes" or "no" (i.e., getting a "set" of saying one thing or the other).

Keep in mind while you're asking the questions that the thing we want to know is whether the child is capable of the task, not if he is allowed or has the opportunity to do it. Try to get the mother to decide on either a "yes" or "no" answer where this problem comes up -- i.e., whether the child could do it in her opinion.

Table 2
Bentler Interview Developmental Scale: Girls

1. Does she turn her head to hear a rattle or something out of her sight?
2. Does she babble or make pleasant little sounds when she seems to be happy?
3. Does she move her head so that she can see better?
4. Does she reach for nearby objects?
5. Can she intentionally move objects with her feet? (Note: The object of this question is her curiosity drive; however, if the child kicks off her blanket intentionally in order to remove it, that also qualifies).
6. Can she make distinct sounds to show her likes and dislikes? (Note: Crying to show dislike is OK, but must also have a way of indicating her pleasure.)
7. Does she smile back when someone smiles at her?
8. Can she intentionally roll on her side from her back?
9. Can she put an object from one hand into the other?
10. Does she seem to listen to sounds she makes when playing with toys or paper?
11. Does she pick something up after dropping it?
12. Does she pull on your hand to raise herself to a sitting position?
13. Can she sit steadily without wobbling or falling?
14. Can she stand while holding onto something?
15. Can she get herself into a sitting position from lying down?
16. Does she look for a toy that is hidden under a blanket or paper?
17. Does she imitate simple sounds (like "ooh", "aah", etc.)? (Note: Where baby makes the sound first, and parent imitates her, and then baby repeats after parent, this also qualifies).
18. Can she walk with support from you?
19. Does she show or offer a toy to someone else?
20. Can she drink from a cup without much spilling? (Note: This means a regular cup with the child holding it alone; a "training cup" (i.e. one with a top and small hole used to train a child) does not qualify).
21. While standing alone, can she turn around to look behind without falling?
22. Can she carry a toy while walking?
23. Can she pick up small objects like marbles?
24. Does she walk the length of a room all alone (without falling)?
25. Does she know she's done something wrong when she makes a mess you don't like?
26. Can she throw objects to you fairly accurately, when you are about four feet away?
27. Does she imitate adult movements or activity (e.g., cleaning, putting a cigarette in the mouth, cooking, etc.)? (Note: Dancing qualifies if actually imitating adults, as for example after seeing dancing on TV; just dancing around with no intent of imitation does not qualify).

28. Can she say the names of familiar people? (Note: she must be able to say the name; indicating awareness by running to the person whose name is mentioned is not enough).
29. Does she recognize she did something wrong when she broke something?
30. Does she have a name for women--such as "mommy", "girl", or "lady" that is different from her name for men?
31. Does she spontaneously name common objects (dogs, cars) when you are outside with her?
32. Can she make a tower with three or more blocks or cans or boxes?
33. Has she tried to get you to look at something she finds interesting--like an airplane, or bird--by pointing to it and saying the word? (Note: Must actually point and <u>say</u> the word).
34. Can she repeat parts of what another person says?
35. Has she tried to explain to you that something (like a dog or car) was "gone", or not there, by pointing and saying words like "car gone" or "doggie not here"?
36. Does she call herself by a name (like "baby" or her own name, etc.)?
37. Can she watch television for about ten minutes without getting bored and walking away? (Note: This means watching alone rather than with friends, as the child's attention span is what we are interested in; if there is no TV in the home, substitute "playing with a toy, or looking at a book for 10 minutes").
38. Can she use all the words "mouth", "nose", "hands", "eyes", and "feet" correctly?
39. Can she put objects in some pattern or order (e.g., a row or square of stones)?
40. Can she change her voice from loud to quiet if you show her how to do so?
41. Can she take off her underpants completely by herself? (Note: Diapers also qualify.)
42. Does she use the actual words "come" and "go" correctly? (Note: Saying "bye bye" etc. not enough; she must use the actual words "come" and "go".)
43. Does she use the actual words "clean" and "dirty" correctly? (Note: Indicating her hand, for instance, is dirty by making faces or noises to indicate it is dirty is not enough; she must use the actual words "clean" and "dirty", or other similar <u>verbal</u> opposites.)
44. Can she use the words "pants" and "dress" correctly?
45. Can she tell an adult if another child or person does something wrong?
46. Does she know whether she is a boy or a girl?
47. Can she kick (not walk into) a ball without falling?
48. Can she make pies, or other adult products, out of clay or mud?
49. Can she turn a tap by herself to get a drink of water? (Note: If the mother indicates the child is too short to reach the tap, suggest the bathtub tap or outdoor faucet.)
50. Does she use the words "big" and "small" correctly? (Note: "Little" or similar adjectives also qualify. Must be verbalizations.)

51. Can she carry on a short conversation with a child her age about what they want to play?
52. Can she carry on a conversation with an adult consisting of several statements back and forth (not just "yes" or "no" answers)?
53. Does she spontaneously talk about something that happened to her a few hours or days before?
54. Can she comb or brush her hair enough to get the hair out of her face and forehead?
55. Does she use words to describe another person who is feeling tired (e.g., does she say "Mommy's tired")? (Note: "Sleepy" or similar substitutes also qualify.)
56. Can she say a few nursery rhymes? (Note: Poems, Sunday school verses, or TV jingles also qualify; must know 2 or 3 lines; an error or two is OK. Recognition not enough - must say.)
57. Can she say her first and last names? (Note: Recognition not enough - must <u>say</u>.)
58. Can she fold pieces of paper? (Note: Folding towels etc. also qualifies. Must be folding, <u>not</u> refolding on previous folds. Must <u>intentionally</u> fold.)
59. Can she walk on a narrow board or brick with both feet?
60. Can she count to five?
61. Can she pretend to be an adult when playing games like "house"? (Note: This question similar to 74; this activity is more home-centered than 74.)
62. Can she, while running, turn sharp corners and stop and go quickly?
63. Does she use the words "first" and "last" correctly?
64. Can she play games like "follow-the-leader" or "hide-and-seek" involving several people and simple rules?
65. Can she play any competitive games, like tag?
66. Can she use both feet for takeoff and landing, when jumping (two inches in the air) from a standing position? (Note: You can give example of "hopping like a bunny" if mother doesn't understand this question.)
67. Does she generally stay dry all night (perhaps only having an accident every two weeks or so)?
68. Can she point out faults in others (e.g., "You don't know how to do this.")?
69. Does she use the word "tomorrow" correctly?
70. Can she undress herself completely?
71. Can she put a T-shirt or undershirt on all by herself?
72. Can she go to friends' houses without being accompanied by an adult? (Note: If mother indicates only plays "next door", find out if it's because the only children available, or who she likes, are next door, (in which case she receives a "Y") or whether she is afraid to go farther away from home (in which case she receives a "N".)
73. Can she set the table (e.g., plates, knives) with very little help?

74. Does she at times imitate and play roles such as grocery clerk or salesperson? (Note: This question similar to 61; but this is less home-centered and refers to external world; roles of fireman, policeman, etc. also qualify.)
75. Can she count to 10 pretty easily and accurately?
76. Can she make herself a sandwich (put butter on bread) or pour a glass of milk? (Note: Don't substitute other tasks.)
77. Does she know that milk comes from cows?
78. Can she swing by herself by "pumping" with her legs?
79. Can she recognize any printed words, such as her own name, or someone else's name? (Note: Not brand names on cereal boxes and similar items however.)
80. Does she laugh at jokes other kids tell? (Note: Child must be laughing here because of understanding the joke, not just because others are laughing.)
81. Does she really understand that her grandmother is her mother's mother?
82. Can she hop on one leg for five or more hops?
83. Can she cut a straight line or follow a written line with scissors?
84. Can she draw a man with two or more parts (e.g., head and body)?
85. Can she dress herself completely including fastening buttons and zippers, but not necessarily shoelaces?
86. Can she color the inside of a figure without going outside the lines?
87. Can she tie a knot as in a shoelace (not the bow)?
88. Can she cut things with a regular table knife (not a play knife), like bread or meat (fork not necessary)? (Note: Using a play knife to cut Playdough or clay not acceptable.)
89. Can she identify a penny and a dime?
90. Can she copy printed words or numbers?
91. Can she unlock a door with a key?
92. Can she draw a figure, like a tree or a person, without copying?
93. Does she know her address (street and house number)?
94. Does she tell jokes that she thinks are funny, even if not actually funny to others?
95. Can she copy drawings (e.g., a house, a picture of a train)?
96. Can she play table games with others, like tic-tac-toe or card games?
97. Does she know that a dime is worth more than a nickel?
98. Does she try to read signs? (Note: Some reading ability is assumed here; ads and street signs qualify, but not cereal packages, cokes, and other packaged material as she may be recognizing the package rather than the words.)
99. Can she identify capital letters? (Note: Only needs to know 3 or 4 capital letters.)

100. Can she tell her name, age, address, city and state?
101. Can she dial on the telephone if you tell her the numbers?
102. Does she know the names of three or four streets in her neighborhood?
103. Can she draw a man with a neck, hands, and clothes?
104. Could she walk four blocks across relatively quiet suburban street corners without supervision and find her way back? (Note: Not necessarily across busy intersections; the question here is whether she can find her way around.)
105. Does she know how to spell simple words like "dog"?
106. Does she know the name of the President of the United States?
107. Can she add small numbers, like 2 plus 6? (Note: Other small numbers, such as 3 plus 5 may be substituted, but 2 plus 2 or 1 plus 1 will not suffice. Counting on fingers OK.)
108. Can she explain the rules of a game like checkers or cards fairly exactly?
109. Can she tell the time by the hour (e.g., about 6 o'clock)?
110. Can she subtract, such as take 3 away from 7? (Note: Counting on fingers OK.)
111. Does she know what year this is?
112. Can she usually catch a lightly tossed ball with one hand?
113. Can she count up to 50 by 5's or 10's?
114. Can she read simple stories having 10-25 different words in them?
115. Does she know the names of all 12 months, and the order in which they come?

Table 3
Bentler Interview Developmental Scale: Boys

1. Does he turn his head to hear a rattle or something out of his sight?
2. Does he babble or make pleasant little sounds when he seems to be happy?
3. Does he move his head so that he can see better?
4. Does he reach for nearby objects?
5. Can he intentionally move objects with his feet? (Note: The object of this question is his curiosity drive; however, if the child kicks off his blanket intentionally in order to remove it, that also qualifies.)
6. Can he make distinct sounds to show his likes and dislikes? (Note: Crying to show dislike is OK, but must also have a way of indicating his pleasure.)
7. Does he smile back when someone smiles at him?
8. Can he intentionally roll on his side from his back?
9. Can he put an object from one hand into the other?
10. Does he seem to listen to sounds he makes when playing with toys or paper?
11. Does he pick something up after dropping it?
12. Does he pull on your hand to raise himself to a sitting position?
13. Can he sit steadily without wobbling or falling?
14. Can he stand while holding onto something?
15. Can he get himself into a sitting position from lying down?
16. Does he look for a toy that is hidden under a blanket or paper?
17. Does he imitate simple sounds (like "ooh", "aah", etc.)? (Note: Where baby makes the sound first, and parent imitates him, and then baby repeats after parent, this also qualifies.)
18. Can he walk with support from you?
19. Does he show or offer a toy to someone else?
20. Can he drink from a cup without much spilling? (Note: This means a regular cup with the child holding it alone; a "training cup" (i.e., one with a top and small hole used to train a child) does not qualify.)
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25. Does he know he's done something wrong when he makes a mess you don't like?
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33. Has he tried to get you to look at something he finds interesting --like an airplane, or bird--by pointing to it and saying the word? (Note: Must actually point and <u>say</u> the word.)
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37. Can he watch television for about ten minutes without getting bored and walking away? (Note: This means watching alone rather than with friends, as the child's attention span is what we are interested in; if there is no TV in the home, substitute "playing with a toy, or looking at a book for 10 minutes".)
38. Can he use all the words "mouth", "nose", "hands", "eyes", and "feet" correctly?
39. Can he put objects in some pattern or order (e.g., a row or square of stones)?
40. Can he change his voice from loud to quiet if you show him how to do so?
41. Can he take off his underpants completely by himself? (Note: Diapers also qualify.)
42. Does he use the actual words "come" and "go" correctly? (Note: Saying "bye bye" etc. not enough; he must use the actual words "come" and "go".)
43. Does he use the actual words "clean" and "dirty" correctly? (Note: Indicating his hand, for instance, is dirty by making faces or noises to indicate it is dirty is not enough; he must use the actual words "clean" and "dirty", or other similar <u>verbal</u> opposites.)
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49. Can he turn a tap by himself to get a drink of water? (Note: If the mother indicates the child is too short to reach the tap, suggest the bathtub tap or outdoor faucet.)
50. Does he use the words "big" and "small" correctly? (Note: "Little" or similar adjectives also qualify. Must be verbalizations.)

51. Can he carry on a short conversation with a child his age about what they want to play?
52. Can he carry on a conversation with an adult consisting of several statements back and forth (not just "yes" or "no" answers)?
53. Does he spontaneously talk about something that happened to him a few hours or days before?
54. Can he comb or brush his hair enough to get the hair out of his face and forehead?
55. Does he use words to describe another person who is feeling tired (e.g., does he say "Mommy's tired")? (Note: "Sleepy" or similar substitutes also qualify.)
56. Can he say a few nursery rhymes? (Note: Poems, Sunday school verses, or TV jingles also qualify; must know 2 or 3 lines; an error or two is OK. Recognition not enough - must say.)
57. Can he say his first and last names? (Note Recognition not enough - must <u>say</u>.)
58. Can he fold pieces of paper? (Note: Folding towels etc. also qualifies. Must be folding, <u>not</u> refolding on previous folds. Must <u>intentionally</u> fold.)
59. Can he walk on a narrow board or brick with both feet?
60. Can he count to five?
61. Can he pretend to be an adult when playing games like "house"? (Note: This question similar to 74; this activity is more home-centered than 74.)
62. Can he, while running, turn sharp corners and stop and go quickly?
63. Does he use the words "first" and "last" correctly?
64. Can he play games like "follow-the-leader" or "hide-and-seek" involving several people and simple rules?
65. Can he play any competitive games, like tag?
66. Can he use both feet for takeoff and landing when jumping (two inches in the air) from a standing position? (Note: You can give example of "hopping like a bunny" if mother doesn't understand this question.)
67. Does he generally stay dry all night (perhaps only having an accident every two weeks or so)?
68. Can he point out faults in others (e.g., "You don't know how to do this.")?
69. Does he use the word "tomorrow" correctly?
70. Can he undress himself completely?
71. Can he put a T-shirt or undershirt on all by himself?
72. Can he go to friends' houses without being accompanied by an adult? (Note: If mother indicates only plays "next door", find out if it's because the only children available, or who he likes, are next door, (in which case he receives a "Y") or whether he is afraid to go farther away from home (in which case he receives a "N".)
73. Can he set the table (e.g., plates, knives) with very little help?

74. Does he at times imitate and play roles such as grocery clerk or salesperson? (Note: This question similar to 61; but this is less home-centered and refers to external world; roles of fireman, policeman, etc. also qualify.)
75. Can he count to 10 pretty easily and accurately?
76. Can he make himself a sandwich (put butter on bread) or pour a glass of milk? (Note: Don't substitute other tasks.)
77. Does he know that milk comes from cows?
78. Can he swing by himself by "pumping" with his legs?
79. Can he recognize any printed words, such as his own name, or someone else's name? (Note: Not brand names on cereal boxes and similar items however.)
80. Does he laugh at jokes other kids tell? (Note: Child must be laughing here because of understanding the joke, not just because others are laughing.)
81. Does he really understand that his grandmother is his mother's mother?
82. Can he hop on one leg for five or more hops?
83. Can he cut a straight line or follow a written line with scissors?
84. Can he draw a man with two or more parts (e.g., head and body)?
85. Can he dress himself completely including fastening buttons and zippers, but not necessarily shoelaces?
86. Can he color the inside of a figure without going outside the lines?
87. Can he tie a knot as in a shoelace (not the bow)?
88. Can he cut things with a regular table knife (not a play knife), like bread or meat (fork not necessary)? (Note: Using a play knife to cut Playdough or clay not acceptable.)
89. Can he identify a penny and a dime?
90. Can he copy printed words or numbers?
91. Can he unlock a door with a key?
92. Can he draw a figure, like a tree or a person, without copying?
93. Does he know his address (street and house number)?
94. Does he tell jokes that he thinks are funny, even if not actually funny to others?
95. Can he copy drawings (e.g., a house, a picture of a train)?
96. Can he play table games with others, like tic-tac-toe or card games?
97. Does he know that a dime is worth more than a nickel?
98. Does he try to read signs? (Note: Some reading ability is assumed here; ads and street signs qualify, but not cereal packages, cokes, and other packaged material as he may be recognizing the package rather than the words.)
99. Can he identify capital letters? (Note: Only needs to know 3 or 4 capital letters.)

100. Can he tell his name, age, address, city and state?
101. Can he dial on the telephone if you tell him the numbers?
102. Does he know the names of three or four streets in his neighborhood?
103. Can he draw a man with a neck, hands, and clothes?
104. Could he walk four blocks across relatively quiet suburban street corners without supervision and find his way back? (Note: Not necessarily across busy intersections; the question here is whether he can find his way around.)
105. Does he know how to spell simple words like "dog"?
106. Does he know the name of the President of the United States?
107. Can he add small numbers, like 2 plus 6? (Note: Other small numbers, such as 3 plus 5 may be substituted, but 2 plus 2 or 1 plus 1 will not suffice. Counting on fingers OK.)
108. Can he explain the rules of a game like checkers or cards fairly exactly?
109. Can he tell the time by the hour (e.g., about 6 o'clock)?
110. Can he subtract, such as take 3 away from 7? (Note: Counting on fingers OK.)
111. Does he know what year this is?
112. Can he usually catch a lightly tossed ball with one hand?
113. Can he count up to 50 by 5's or 10's?
114. Can he read simple stories having 10-25 different words in them?
115. Does he know the names of all 12 months, and the order in which they come?

Table 4
BIDS Reliabilities: Girls

ID Code	N	M_1	M_2	S.D.$_1$	S.D.$_2$	r_{12}
011	30	5.8	6.7	2.6	2.6	.65
021	34	11.4	12.1	3.6	3.3	.78
031	40	18.6	19.2	4.1	4.1	.88
041	48	22.2	23.8	5.8	6.8	.91
051	41	29.5	33.0	6.4	6.5	.92
061	31	34.3	36.2	5.5	6.3	.75
071	30	42.7	47.3	8.9	9.5	.80
081	28	51.9	54.2	10.3	11.4	.88
091	31	59.3	60.9	7.7	8.0	.89
101	24	62.1	65.5	9.8	9.7	.93
111	28	67.9	69.3	8.4	8.9	.88
121	28	74.0	75.4	7.7	8.1	.84
131	26	77.5	78.5	9.7	10.5	.85
141	34	77.7	78.9	9.0	9.2	.83
151	23	84.2	83.8	6.5	7.3	.71
161	35	86.9	87.3	8.1	8.5	.90
171	31	91.8	91.2	6.8	6.7	.89
181	24	91.9	91.5	7.4	8.9	.81
191	39	96.6	96.7	7.7	7.0	.89
201	39	96.2	97.1	6.7	7.1	.75
211	29	101.9	101.6	6.2	7.5	.87
221	42	102.7	102.4	5.2	6.0	.83
231	25	103.2	101.9	9.5	9.9	.93
241	26	104.5	105.2	4.5	5.8	.83
251	20	106.4	105.4	6.4	6.4	.89
261	33	109.5	109.1	3.9	4.1	.74
271	34	109.5	109.1	4.0	4.2	.84
281	26	111.1	110.0	3.0	3.4	.69
Total N	879			Average Correlation		.83

Table 5
BIDS Reliabilities: Boys

ID Code	N	M_1	M_2	S.D.$_1$	S.D.$_2$	r_{12}
012	26	5.8	7.4	1.7	2.4	.67
022	38	11.3	12.4	3.0	2.9	.72
032	42	16.7	18.0	4.7	5.7	.90
042	48	24.9	26.7	6.3	5.8	.85
052	42	27.1	30.1	4.4	4.3	.63
062	31	35.6	37.5	10.6	10.4	.92
072	35	37.9	41.3	8.6	9.6	.85
082	32	45.4	51.2	7.6	7.7	.81
092	38	52.1	55.6	11.1	11.8	.87
102	31	58.0	62.2	8.3	9.7	.87
112	30	65.6	67.5	8.6	9.1	.84
122	30	69.4	71.0	8.5	9.5	.74
132	40	73.3	73.9	9.5	11.7	.86
142	28	80.9	81.7	6.1	6.4	.82
152	32	78.3	78.2	7.5	7.3	.81
162	25	84.5	83.8	9.5	9.1	.91
172	38	88.6	89.3	6.5	6.0	.68
182	26	90.8	91.4	6.6	8.8	.82
192	34	94.3	92.6	7.2	8.3	.89
202	36	95.8	95.7	8.3	8.4	.87
212	39	97.4	97.6	7.2	6.8	.87
222	27	101.7	100.2	6.6	6.9	.84
232	36	103.7	102.6	4.9	5.6	.72
242	45	104.7	103.8	5.7	7.6	.86
252	28	107.4	106.2	4.3	5.2	.76
262	31	108.2	107.3	5.0	6.3	.87
272	26	108.8	108.6	3.7	3.4	.52
282	32	111.3	110.6	3.2	6.2	.81
Total N	946			Average Correlation		.81

Table 6
Internal Consistencies:
Odd-Even Correlation, with Spearman-Brown Correction

Girls			Boys		
ID Code	N	r	ID Code	N	r
011	71	.81	012	62	.58
021	95	.84	022	96	.78
031	99	.85	032	113	.84
041	112	.82	042	118	.85
051	111	.86	052	131	.95
061	105	.91	062	104	.94
071	94	.93	072	96	.93
081	80	.96	082	85	.94
091	91	.94	092	117	.94
101	89	.94	102	82	.95
111	64	.94	112	90	.94
121	83	.91	122	76	.93
131	72	.87	132	99	.93
141	85	.94	142	75	.86
151	71	.90	152	92	.94
161	81	.93	162	67	.90
171	90	.89	172	94	.85
181	58	.90	182	87	.89
191	77	.88	192	80	.93
201	83	.93	202	88	.91
211	85	.88	212	102	.90
221	103	.88	222	80	.87
231	66	.93	232	73	.95
241	76	.81	242	90	.90
251	68	.94	252	68	.85
261	71	.84	262	71	.91
271	69	.95	272	64	.89
281	53	.95	282	52	.90
Total Ns	2302			2452	
Average Correlations		.90			.89

Table 7
BIDS Growth Data

Initial Age Code	N	Mean Gained Age	Initial-Final Score Correlation	Age Gain-Score Gain Correlation
011,012	108	5.38	.239	.746
021,022	113	6.38	.308	.794
031,032	85	8.44	.294	.702
041,042	109	8.68	.432	.642
051,052	113	8.61	.376	.679
061,062	112	8.61	.393	.495
071,072	88	8.59	.441	.630
081,082	101	8.41	.439	.520
091,092	116	8.30	.270	.538
101,102	127	8.48	.450	.560
111,112	108	8.93	.373	.515
121,122	99	8.70	.574	.590
131,132	114	8.32	.520	.565
141,142	95	8.88	.513	.460
151,161	98	8.39	.693	.420
171,181	92	8.77	.602	.611
191,201	91	7.94	.450	.584
211,221	90	8.56	.641	.532
231,241	99	8.57	.674	.322
251,261	91	8.86	.691	.112
271,281	80	8.45	.716	.103
291,301	107	8.37	.701	.165
311,321	88	8.89	.803	.083
331,341	88	8.11	.765	.482
351,361	91	8.86	.773	.479
371,381	105	9.06	.690	.243
391,401	101	9.06	.593	.341
411,421	88	9.32	.677	.257
431,441	80	8.70	.699	.190
451,461	93	9.05	.800	.268
471,481	74	8.64	.708	.440
491,501,511	124	9.29	.739	.127
521,531,541	113	8.84	.641	.372
551,561,571	119	9.07	.444	.106
581,591,601	89	9.22	.811	.114
611,621,631	101	9.27	.783	.246
641,651,661	105	8.61	.674	.260
671,681,691	79	8.61	.776	.201
701,711,721	83	8.88	.784	.312

Table 7
BIDS Growth Data
(continued)

Initial Age Code	N	Mean Gained Age	Initial-Final Score Correlation	Age Gain Score Gain Correlation
152,162	95	8.62	.521	.484
172,182	100	8.48	.687	.367
192,202	110	8.28	.648	.306
212,222	85	8.74	.663	.297
232,242	104	8.53	.715	.350
252,262	98	8.44	.644	.483
272,282	91	8.38	.708	.356
292,302	97	8.26	.575	.370
312,322	100	8.51	.706	.456
332,342	112	8.65	.737	.004
352,362	92	9.20	.684	.189
372,382	122	8.98	.635	.388
392,402	99	8.68	.755	.416
412,422	89	8.76	.711	.291
432,442	89	8.88	.709	.564
452,462	94	8.69	.694	.459
472,482	89	9.66	.661	.254
492,502,512	145	9.35	.709	.337
522,532,542	140	9.04	.670	.235
552,562,572	125	9.22	.728	.227
582,592,602	123	9.24	.736	.032
612,622,632	108	8.67	.818	.209
642,652,662	100	8.68	.741	.370
672,682,692	87	8.81	.742	.165
702,712,722	90	8.37	.735	.111
Total N	6441			
Averages	101		.63	.37

Table 8
BIDS Preliminary Norms:
I. First 15 Months, Girls and Boys

ID Code	Age in Months	N	Mean	S.D.
01A	0-1½	59	4.64	1.88
01B	1½-3	89	6.92	2.28
02A	3-4½	106	9.48	2.88
02B	4½-6	102	12.64	3.02
03A	6-7½	110	16.16	3.24
03B	7½-9	113	19.19	3.82
04A	9-10½	126	21.32	3.24
04B	10½-12	116	24.85	4.15
05A	12-13½	114	27.69	4.92
05B	13½-15	134	30.28	4.51

Table 8
BIDS Preliminary Norms:
II. Ages 16 to 36 Months, Separate by Sex

ID Code	Age in Months	Girls N	Girls Mean	Girls S.D.	Boys N	Boys Mean	Boys S.D.
06	16-18	106	35.97	6.12	110	34.03	5.93
07	19-21	96	41.10	7.92	101	38.56	7.43
08	22-24	84	50.38	10.20	89	46.57	8.70
09	25-27	94	56.37	9.53	118	51.99	9.59
10	28-30	92	60.40	10.57	83	56.30	8.85
11	31-33	69	66.01	9.41	90	62.98	9.68
12	34-36	86	73.20	8.85	75	70.07	8.70

Table 8
BIDS Preliminary Norms:
III. Ages 37 to 84 Months, Girls and Boys

ID Code	Age in Months	N	Mean	S.D.
13	37-39	173	74.62	8.41
14	40-42	165	78.33	8.66
15	43-45	166	81.24	8.88
16	46-48	149	85.67	7.77
17	49-51	185	88.96	6.83
18	52-54	148	91.40	6.80
19	55-57	159	94.23	8.52
20	58-60	171	96.36	7.17
21	61-63	192	99.47	6.65
22	64-66	182	100.82	6.01
23	67-69	137	103.37	5.19
24	70-72	172	104.76	5.34
25	73-75	137	106.26	5.08
26	76-78	144	108.83	4.60
27	79-81	135	109.16	3.96
28	82-84	106	111.70	2.49
Total N		4883		

Table 9
Summary of Validity Studies

Study Number	N	Age in Months Mean	Age in Months Range	Other Attributes	Results
1	13	5	3-7	Normal infants were tested with the Bayley Scales of Infant Development. Mental and Motor Development Indexes were combined and compared to BIDS scores.	No significant association between Bayley and BIDS.
2	18	8	7-10	Same as study 1.	No significant association between Bayley and BIDS.
3	24	41	35-47	Upper-middle class children were given Form L-M of the Stanford-Binet. Mental ages were correlated with BIDS scores.	Mental age and BIDS correlated .50, statistically significantly.
4	10	52	48-56	Same as study 3.	Mental age and BIDS correlated .56.
5	37	58	52-63	Headstart children were tested with the Peabody Picture Vocabulary Test and the Caldwell. Several months later BIDS scores were obtained.	No significant association between Peabody and BIDS, nor between Caldwell and BIDS.
6	77	66	--	Teachers selected the most and least shy children from their kindergarten classes. Objective test analogues of BIDS items were administered to the children, as was the Peabody. BIDS scores were obtained from the mother.	No significant association between Peabody and BIDS. Objective test and BIDS correlated significantly with r=.62.

Table 9
Summary of Validity Studies
(Continued)

Study Number	N	Age in Months Mean	Range	Other Attributes	Results
7	18	15	3-33	Children with hearing problems were tested with the Bayley. Hearing aids were fitted. 3-6 months later BIDS scores were obtained.	Marginally significant association between Bayley and BIDS. Chi-square 3.56, p=.07. Mean BIDS scores were 1 S.D. below norms.
8	10	46	28-60	Mothers of autistic children were contacted through self-help organizations. A questionnaire version of BIDS was administered.	BIDS age equivalent scores showed the autistics averaged at 16 months developmentally.
9	20	74	61-84	Same as study 8 above.	The autistics averaged at 27 months developmentally.
10	89	146	85-261	Same as study 8 above.	The autistics averaged at 37 months developmentally.
11	13	60	25-82	Mothers of mentally retarded children were contacted through self-help organizations. A questionnaire version of BIDS was administered.	BIDS age equivalent scores showed the mentally retarded children averaged at 20 months developmentally.
12	33	173	85-432	Same as study 11 above.	The mentally retarded persons averaged at 43 months developmentally.